REMARKS

Amendment of the claims and reconsideration of the Office Action of July 13, 2004 is respectfully requested by Applicants.

Claims 18-21 and 23 have been amended in order to place them in condition for allowance or appeal. No new matter has been added. Claims 18-25 are currently pending.

Rejection under 35 USC §112, first paragraph

Claims 20-25 have been rejected under 35 USC §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Examiner argues that mouse myeloma cell line P3x63-Ag8.653 is required in order to practice the invention as claimed (claims 20-21 and 23-25), and the deposit of biological organisms is considered by the Examiner to be necessary for enablement of the current invention. It is the Examiner's position that the Applicants have failed to demonstrate that said cell line was readily available to the public. Moreover, said availability must be for the life of any patent arising from the instant application.

Applicants have amended claims 20, 21, and 23 so that the subject cell line is no longer recited, thus avoiding the rejection. Furthermore, however, Applicants reiterate that mouse myeloma cell line P3X63Ag8.653 belongs to the public domain and has been known by those skilled in the art for a number of years. See, for example, Foerster, R. et al., *Blood*, Vol 84, No., 3, pp 830-840, 1994 (copy attached). Furthermore, a search of the German Collection of Microorganisms and Cell Cultures (DSMZ) shows that several related cell lines, e.g., X63AG8.653, derived from P3x63AG8 are deposited with the DSMZ (copy of search results attached). The Examiner's reconsideration of the rejection in light of the current amendment is respectfully requested.

Rejection under 35 USC §102 (b)

Claims 18 and 19 have been rejected under 35 USC §102 (b) as being anticipated by, or in the alternative under 35 USC 103 (a) as obvious over, Hinds et al., *J. Medicinal Chemistry*, Vol. 34, No. 6, pp. 1777-1789, 1991 (hereinafter "Hinds"). The Examiner argues (in the Office Action mailed 4/19/02) that the instant claims are drawn to monoclonal antibodies with a binding specificity for the sequence YPYDVPDYA. Hinds discloses antibodies with a binding specificity to the sequence YPYDVPDYA (see abstract). Hinds is silent regarding the specificity of said antibodies. However, it would be obvious to one of skill in the art to select those antibodies with the highese affinity.

As now amended, Applicants claims are drawn to an antibody raised against an epitope of human influenza virus haemagglutinin consisting of 13 or 14 amino acids. Hinds teaches a 19 amino acid-containing haemagglutinin peptide. Thus Hinds does not anticipate Applicants invention.

There is nothing in Hinds to suggest or provide the motivation to try raising an antibody against an epitope of human influenza virus haemagglutinin consisting of 13 or 14 amino acids. Furthermore, there is no reasonable expectation of success by trying such a modification. Surprisingly, the affinity of the antibodies of Applicants' invention is higher than that of the antibodies taught by Hinds. For these reasons, Applicants' argue that their invention as claimed in Claims 18 and 19 is not obvious over Hinds.

The Examiner's reconsideration of this grounds of rejection of Claims 18 and 19 is respectfully requested.

Rejection under 35 USC §103 (a)

Claims 18-21 and 23-25 have been rejected under 35 USC §103 (a) as being unpatentable over Hinds in view of Kuby, Immunology, 2nd Ed., W.H. Freeman and Co., pp. 160-164, 1994 (hereinafter "Kuby"). The Examiner argues (in the Office Action

mailed 4/19/02) that Hinds discloses antibodies with a binding specificity to the sequence YPYDVPDYA (see abstract). Hinds does not disclose the exact method steps recited in the instant claims. Specifically, Hinds does not explicitly disclose the use of the P3-X63-AF8.653 murine myeloma cell line or the use of Lou/C rats. However, as disclosed by Kuby, the methodology for producing monoclonal antibodies is well known in the art. It is the Examiner's position that since the production of a given monoclonal antibody is predicated on the antigen used to immunize the animal, the selection of a specific animal and/or myeloma cell line merely constitutes a conventional alternative to the method disclosed by Kuby and hence would have been obvious to one of skill in the art.

As now amended, Applicants' claims specifically recite an antibody raised against an epitope of human influenza virus haemagglutinin consisting of 13 or 14 amino acids. Neither Hinds nor Kuby, singly or combined, teach or suggest an epitope of influenza virus haemagglutinin consisting of 13 or 14 amino acids. Furthermore, there is no reasonable expectation of success by trying such a modification. Surprisingly, the affinity of the antibodies of Applicants' invention is higher than that of the antibodies taught by Hinds. For these reasons, Applicants' argue that their invention as claimed in Claims 18-21 and 23-25 is not obvious over Hinds in view of Kuby, and that the case for *prima facie* obviousness has not been made.

The Examiner's reconsideration of this grounds of rejection of Claims 18-21 and 23-25 is respectfully requested.

Applicants submit that their application is now in condition for allowance, and favorable reconsideration of their application in light of the above amendments and is respectfully requested. Allowance of claims 18-25 at an early date is earnestly solicited.

* * * * * *

The Examiner is hereby authorized to charge any fees associated with this Amendment to Deposit Account No. 50-0877. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

Marilyn Amick

Marilyn L. Amick
Reg. No. 30,444

Customer No. 23690
Phone: 317-521-7561

CLAIMS LISTING 9/13/2004

What is claimed is:

1-17 (previously cancelled)

18. (currently amended) A monoclonal antibody having ~~an~~ a binding affinity of $>10^{8}M^{-1}$ for the amino acid sequence YPYDVPDYA[[,]] (SEQ ID NO: 1) as determined using a BIACORE® surface plasmon resonance system~~, wherein said monoclonal antibody is~~ and raised against ~~a 13- or 14-amino acid containing~~ an epitope of human influenza virus haemagglutinin consisting of 13 or 14 amino acids.

19. (currently amended) A monoclonal antibody having ~~an~~ a binding affinity of 10^{9}-$10^{10}M^{-1}$ for the amino acid sequence YPYDVPDYA, (SEQ ID NO: 1) as determined using a BIACORE® surface plasmon resonance system~~, wherein said monoclonal antibody is~~ and raised against ~~a 13- or 14-amino acid containing~~ an epitope of human influenza virus haemagglutinin consisting of 13 or 14 amino acids.

20. (currently amended) The monoclonal antibody of claim 18 or claim 19, wherein said antibody is produced by hybridomas which are obtained by fusing mouse ~~P3x63-Ag8.653~~ myeloma cells with B lymphocytes from Lou/C rats, said Lou/C rats having been immunized with a haemagglutinin peptide.

21. (currently amended) The monoclonal antibody of claim 18 or claim 19, wherein said antibody is produced by hybridomas which are obtained by fusing mouse ~~P3x63-Ag8.653~~ myeloma cells with B lymphocytes from Lou/C rats, said Lou/C rats having been immunized with a haemagglutinin peptide, wherein said immunization is carried out with a haemagglutinin peptide coupled to keyhole limpet haemocyanin.

22. (previously amended) The monoclonal antibody of claim 18 or claim 19, wherein said antibody is produced by hybridoma R 3A12 deposited at the "Deutsche Sammlung für Mikroorganismen und Zellkulturen" under Accession No. DSM ACC2286 (08.10.1996).

CLAIMS LISTING 9/13/2004

23. (currently amended) A method for the production of a monoclonal antibody ~~against~~ with binding specificity for the epitope YPYDVPDYA (SEQ ID NO: 1) comprising:

(a) synthesizing a haemagglutinin peptide consisting of 13 or 14 amino acids,

(b) immunizing a small mammal with said peptide,

(c) isolating B lymphocytes from the spleen of said mammal and fusing said lymphocytes with mouse ~~P3x63-Ag8.653~~ myeloma cells to form clones,

(d) selecting clones formed in step (c) that produce an antibody which binds to [[a]] the haemagglutinin peptide and to a haemagglutinin fusion protein, and

(e) selecting a clone from those selected in step (d) that produces an antibody with ~~an~~ a binding affinity of $>10^{8} M^{-1}$ for the sequence YPYDVPDYA (SEQ ID NO: 1) and establishing said clone as a hybrid cell line.

24. (previously added) The method of claim 23, wherein said haemagglutinin peptide is selected from the group consisting of acetyl-YPYDVPDYAGSGSK (ε-biotinoyl) amide (a derivative of SEQ ID NO: 2) and biotinoyl-ε-Aca-SGSGYPYDVPDYA amide (a derivative of SEQ ID NO: 3).

25. (previously added) The method of claim 23, wherein said haemagglutinin fusion protein is haemagglutinin-tagged glutathione-S-transferase.